

ABSTRACT OF THE DISCLOSURE

Light-emitting ceiling tile device, comprising: a plurality of nanostructures, the nanostructures comprising a group IV semiconductor and a capping agent coupled to the group IV semiconductor, wherein the nanostructures have an average dimension of between about 0.5 nm to about 15 nm; and a first electrode electrically coupled to the plurality of nanostructures; and a second electrode electrically coupled to the plurality of nanostructures; wherein the first and second electrodes together are configured to conduct an applied current to the nanostructures, wherein the nanostructures produce light in response to the applied current.